

We claim:

1. A coated heat-shrinkable polymeric film comprising:  
an oriented substrate comprising a polyolefin and having a first shrinkage percentage; and  
5 a coating disposed on at least one side of said substrate;  
wherein the coated film has a shrink of between 6% and 15% and the shrinkage percentage of the coated film is at least 90% of the first shrinkage percentage.
2. The coated heat-shrinkable polymeric film according to Claim 1, wherein said coating is a water-based coating.
- 10 3. The coated heat-shrinkable polymeric film according to Claim 2, wherein said water-based coating comprises an acrylate, polyvinylidene chloride, PVOH, EVOH or a clay filler.
4. The coated heat-shrinkable polymeric film according to Claim 1, wherein said coating comprises a terpolymer of from 2.5% to about 6 % by weight of an  
15 alpha-beta monoethylenically unsaturated carboxylic acid from the group consisting of acrylic acid, methacrylic acid and mixtures thereof; and from 94% to about 97.5% by weight of neutral monomer esters.
5. The coated heat-shrinkable polymeric film according to Claim 4, wherein said neutral monomer esters comprise from about 40% to about 70% by weight of

methyl methacrylate or ethyl acrylate and from about 30% to about 60% by weight of methylacrylate.

6. The coated heat-shrinkable polymeric film according to Claim 4, wherein said coating further comprises an inert inorganic filler.
- 5 7. The coated heat-shrinkable polymeric film according to Claim 1, wherein the coated film has a balanced MD (machine direction) and TD (transverse direction) shrink of between 6% and 13%.
8. The coated heat-shrinkable polymeric film according to Claim 1, wherein said oriented substrate comprises a blend layer of polypropylene homopolymer and a copolymer of propylene and ethylene.
- 10 9. The coated heat-shrinkable polymeric film according to Claim 8, wherein the blend layer is about 90 wt. % polypropylene homopolymer and about 10 wt. % propylene and ethylene copolymer.
10. The coated heat-shrinkable polymeric film according to Claim 8, wherein  
15 the substrate further comprises a pair of outer layers disposed on either side of said blend layer.
11. The coated heat-shrinkable polymeric film according to Claim 10, wherein said outer layers comprise a propylene-ethylene-butylene terpolymer.

12. The coated heat-shrinkable polymeric film according to Claim 1, wherein one surface of the film is coated with a water-based acrylic and the other surface is coated with polyvinylidene chloride.
13. The coated heat-shrinkable polymeric film according to Claim 1, wherein  
5 the substrate is corona treated prior to coating.
14. The coated heat-shrinkable polymeric film according to Claim 1, wherein the substrate is corona treated and a primer is applied prior to coating.
15. The coated heat-shrinkable polymeric film according to Claim 1, wherein said substrate has an overall thickness of from about 12 to about 60 microns.
- 10 16. The coated heat-shrinkable polymeric film according to Claim 14, wherein said substrate has an overall thickness of from about 18 to about 29 microns, and wherein each of said outer layers has a thickness of approximately 0.6 microns.
17. A coated heat-shrinkable polymeric film made by a process comprising:  
forming a polypropylene-based substrate;  
15 biaxially orienting said substrate to form a heat-shrinkable film having a first shrink percentage;  
coating said substrate with a water-based coating to form a coated heat-shrinkable polymeric film; and  
drying said coated film;

wherein, after drying, the coated film has a balanced MD (machine direction) and TD (transverse direction) shrink of between 6% and 13% and the shrink percentage of the coated film is at least 90% of the first shrink percentage.

18. The coated heat-shrinkable polymeric film according to claim 17, wherein  
5 the shrink percentage of said coated film is at least 95% of the first shrink percentage.

19. The coated heat-shrinkable polymeric film according to claim 17, wherein said substrate is formed as a core layer comprising a polypropylene homopolymer disposed between two outer layers.

10 20. The coated heat-shrinkable polymeric film according to claim 17, wherein said water-based coating comprises an acrylate, polyvinylidene chloride, PVOH, EVOH or a clay filler.

21. The coated heat-shrinkable polymeric film according to claim 17, wherein said coating comprises a terpolymer of from 2.5% to about 6 % by weight of an  
15 alpha-beta monoethylenically unsaturated carboxylic acid from the group consisting of acrylic acid, methacrylic acid and mixtures thereof; and from 94% to about 97.5% by weight of neutral monomer esters.

22. The coated heat-shrinkable polymeric film according to claim 17, wherein the substrate is corona treated and a primer is applied prior to coating.

20 23. A process for making a coated heat-shrinkable polymeric film comprising:

forming a biaxially oriented heat-shrinkable polyolefin substrate having a first shrinkage percentage;

coating at least one side of said substrate with a water based coating; and

drying said coated substrate to form a coated film;

5 wherein said coated film has a shrink of between 6% and 15% and the shrinkage percentage of the coated film is at least 90% of the first shrinkage percentage.

24. The process for making a coated heat-shrinkable polymeric film according to Claim 23, wherein said water-based coating comprises an acrylate, polyvinylidene chloride, PVOH, EVOH or a clay filler.

10 25. The process for making a coated heat-shrinkable polymeric film according to Claim 23, wherein said coating comprises a terpolymer of from 2.5% to about 6 % by weight of an alpha-beta monoethylenically unsaturated carboxylic acid from the group consisting of acrylic acid, methacrylic acid and mixtures thereof; and from 94% to about 97.5% by weight of neutral monomer esters.

15 26. The process for making a coated heat-shrinkable polymeric film according to Claim 25, wherein said neutral monomer esters comprise from about 40% to about 70% by weight of methyl methacrylate or ethyl acrylate and from about 30% to about 60% by weight of methylacrylate.

27. The process for making a coated heat-shrinkable polymeric film according to Claim 25, wherein said coating further comprises an inert inorganic filler.

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28. The process for making a coated heat-shrinkable polymeric film according to Claim 23, wherein the coated film has a balanced MD - TD shrink of between 6% and 13%.

29. The process for making a coated heat-shrinkable polymeric film according to Claim 23, further comprising corona treating said substrate on at least one side prior to coating.

30. The process for making a coated heat-shrinkable polymeric film according to Claim 29, further comprising precoating said corona treated substrate with a primer on at least one side and drying said precoated substrate in an oven prior to coating.

31. The process for making a coated heat-shrinkable polymeric film according to Claim 30, wherein said precoated substrate is dried in an oven at a temperature of from about 100°C to about 110°C and at a tension of from about 13 lbs/meter to about 18 lbs/meter.

32. The process for making a coated heat-shrinkable polymeric film according to Claim 30, wherein said coated film at a temperature of from about 90°C to about 100°C and at a tension of from about 10 lbs/meter to about 15 lbs/meter.

33. The process for making a coated heat-shrinkable polymeric film according to claim 23, wherein the shrink percentage of said coated film is at least 95% of the first shrink percentage.

34. The process for making a coated heat-shrinkable polymeric film according to claim 23, wherein said substrate is formed as a core layer comprising a polypropylene homopolymer disposed between two outer layers.

35. The process for making a coated heat-shrinkable polymeric film according to Claim 23, wherein said drying step includes controlling air flow, temperature profile and tension of said film to simultaneously prevent both shrinkage and wrinkling of said substrate.

36. The process for making a coated heat-shrinkable polymeric film according to Claim 30, wherein said primer is applied at a coating weight of from about 0.02 to about  $0.08 \text{ g/m}^2$  and said acrylic water-based coating is applied at a coating weight of about 0.5 to about  $1.2 \text{ g/m}^2$ .